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AUTOMATION IN THE GAME TESTING. APPROACHES AND SOLUTIONS

Today, the game development industry is one of the most profitable in the world. This is due to the growing interest in both the products manufactured by this industry and the processes by which these products are created. Among all professions related to the game development industry, the profession of a tester plays an important role. This is a way to start your career in game development, and this profession is also one of the most difficult. The difficulty lies in the fact that the tester, like the developer of the game, must provide all the options for the player's behaviour in a particular situation during a game session. And, since the options for human behaviour in different situations are not always calculated accurately, and especially when it comes to beginners, they can use special tools to automate routine testing, so that the tester has more time to test unique situations that could not be automatically checked.

Objective. Informing society about Game development and processes which can be automated by using special tools (proprietary and open-source as well).

The research is based on the personal experience of the author, as well as on the experience of some well-known Ukrainian game development companies. More than 10 different game developers were interviewed during the study. This work is intended to analyze some approaches to automating the solutions of routine tasks in the process of developing a game and to popularize them in other areas because the above tools are quite scalable and flexible.

Work was carried out to systematize knowledge of open-source tools for automation, and also gain theoretical knowledge and practical experience in using proprietary programs.

Also, there is very important to inform the newcomers about such kind of technologies because it can make their probation period in the big game development studios easier, and more effective. For today's world, where game developers need to work overtime, these tools can resolve the problems of professional burnout and "crunches".

Today we have a big amount of different solutions for the automation of software testing process. And one of the main tasks of this research is to compare it and make a conclusion, which software is the most suitable for game development realities in Ukraine and Eastern Europe at all.

There are the following solutions for automation of software testing process:

1. **Selenium.** There is a semi-open-source tool for automation testing of a web applications and web sites. It is also possible to use Selenium for a game testing because some games can be launched in web-browser but for today there is not so rational, because a big part of projects developed for mobile devices, PC and consoles but not for web-browsers. Also, by default, Selenium can't automate process of sending a bug-reports, so this software is not practical for game testing without an additional plugins and fixes.

2. **Appium.** There is a tool, which based on the Selenium, but also can automate the testing processes of mobile apps and hybrid applications (both web and mobile solutions). And, as well as original Selenium IDE, it also can be used for automation of a game testing but it has not enough functionality for a full automation of a routine processes in game testing. First of all, games are not standard applications, especially, if we talk about mobile gaming. There is no standardization for interfaces, gameplay specifics etc. So it will be very hard to use the same automation scripts for more than one project (if we are not talking

about some specific cases when a game-dev studio makes a big amount of games in only one genre and only for one platform). So this solution is not so flexible and it will be very hard to use it without an additional development for automation of a game testing process.

3. **Several words about closed proprietary solutions.** For today, we have some representatives of a Big game developer companies here in Ukraine. Usually they prefer to use some special toolkits which were developed only for internal use. And these solutions are much more effective for a game testing process. In the most cases, these solutions have a module-based structure (There is such kind of structure when a big program complex is divided into some autonomous parts and sub-programs) and include some very important modules like: Module for automation of sending bug-reports, module for automation of launching a game, module for catching software crashes etc. But there is one problem which makes these software solutions unavailable for a big part of game developers. There are solutions which can be used only in the company which developed this software.

Conclusions. Therefore, we can conclude that for a game development process and game testing process it can be more useful to have a specialized tool which can guarantee the high-quality results of automation testing reports and automation of solving routine problems.

Automation of routine tasks is a future for a big amount of spheres and industries and game development industry is not an exception. For now, this industry needs automation tools and professionals, who can use such kind of software for making the products better and it is very important to give them the best solution which can exist in these realities.

Key words: Game development, software testing, automation, open-source.

REFERENCE

1. Habr.com [Електронний ресурс] / Режим доступу: <https://habr.com>.
2. Wikipedia [Електронний ресурс] Test automation / Режим доступу: https://en.wikipedia.org/wiki/Test_automation.
3. QA-Academy [Електронний ресурс] Автоматизация тестирования / Режим доступу: <https://qa-academy.by/qaacademy/news/avtomatizaciya-testirovaniya/>.
4. Guru99 [Електронний ресурс] Game testing: How to test Mobile and Desktop apps / Режим доступу: <https://www.guru99.com/game-testing-mobile-desktop-apps.html>.